MULTIMEDIA UNIVERSITY

STUDENT IDENTIFICATION NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015/2016

BIC1024 – BUSINESS APPLICATIONS DEVELOPMENT

(All sections / Groups)

10 MARCH 2016
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 6 pages with 6 Questions only.

2. Attempt **FOUR** out of FIVE questions in section A. Attempt **ALL** questions in section B. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

SECTION A: Answer FOUR questions only [80 marks]

QUESTION 1

i. Briefly explain the right moment to apply algorithmic solutions and heuristic solution in solving problems. Provide one example for each solution. (6 marks)

ii. You and your business partners have started a company that assist organisation in building business applications. The team feels that there are a few issues that needed to be agreed upon among the members to ensure smooth operations. You have highlighted the importance to form a naming conventions for all variables and module names for the team to follow while developing applications.
Briefly discuss FIVE reasons to form a naming convention for variables and modules. (10 marks)

iii. Explain the theory to perform bubble sort. (4 marks)

(Total: 20 marks)

QUESTION 2

i. Briefly explain While/WhileEnd structure used during program development. (3 marks)

ii. Draw a flowchart to represent the use of While/WhileEnd structure to display all even numbers starting from 12 to 50. (7 marks)

iii. Based on the information given below, evaluate A.

w = true; x = true; y = false; z= false

a) A = w OR y (2 marks)
b) A = w AND z OR x (2 marks)
c) A = NOT y AND w (2 marks)
d) A = NOT (x OR z) AND w (2 marks)
e) A = NOT x AND NOT z OR w (2 marks)

(Total: 20 marks)

Continued...

QUESTION 3

i. Your team has been assigned to develop a system that calculates the commission earned based on the sales amount entered into the system and also a particular commission rate. Your customer would like the system to perform as follows:

> The system needs the employee's name and his/her sales values. The commission rate will be determined based on the sales value entered. If sales value is lesser than RM1000, commission rate would be 2% of the sales value. If sales value is equal or larger than RM1000 and equal or lesser than RM3000, commission rate would be 4% of the sales value. Else, commission rate would be 6%.

Based on the requirements above, develop a problem analysis chart. (10 marks)

ii. One of the decision logic that can be used is the positive logic structure. Based on the scenario mentioned in Question 3 (i), draw a flowchart that uses positive logic to depict the determination of commission rate. (10 marks)

(Total: 20 marks)

QUESTION 4

i. Explain the concept of *coupling* while developing a business application. (2 marks)

ii. While developing a program using structured modular programming, a data can be sent from one module to another module by using call-by-value parameter. Briefly explain this concept. (6 marks)

iii. Rewrite the following *for loop structure* in C language by using *while loop structure*. Assume all variables have been declared. (12 marks)

```
sum = 0;

for(n=1; n <= 5; n++)
{
    printf("Enter Mark: ");
    scanf(" %d", &age);

    sum = sum + age;
}
```

(Total: 20 marks)

Continued...

QUESTION 5

The organization needs your assistance to create a system that store the sales' volume of five employees. The system needs to store the employees' name and their respective sales volume. You decided to use arrays to store these information.

Based on the scenario above, complete the following tasks by using C language. Assume all variables have been declared.

i. Declare one array (named as *employee*) to store employees' name and one array (named as *sales*) to store their sales volume. Assign the following data to the respective arrays.

employee	Ahmad	John	Kelly	Steve	Mary
sales	100.50	321.10	542.10	123.10	521.50

(4 marks)

ii. Write a source code that display Kelly's name and his sales volume. (2 marks)

iii. Ahmad manages to obtain additional 250.20 of sales for the company. Write the source code to update the latest amount of sales for Ahmad in the array. (2 marks)

iv. Steve has left the company and his position has been replaced by Ali. The sales volume obtained by Steve will remain in the system as usual. Replace Steve with Ali in the system. (2 marks)

v. By using one *for* loop structure, display both employees' name and sales volume. (5 marks)

vi. By using a *for loop structure*, calculate the total sales of the company. (5 marks)

(Total: 20 marks)

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SECTION B: Answer ALL questions [20 marks]

QUESTION 6

You and your team members are currently developing a business application that assist an airline company in determining if an applicant is eligible to be a cabin crew of the company. The company has provided the conditions that need to be fulfilled in order to be a cabin crew. The conditions are as follows:

> Applicant will be disqualified if he/she is younger than 21 years old. However, if the applicant is at least 21 years old, the applicant need to be at least 160cm tall in order to be a cabin crew of the company.

The following page shows a portion of the source codes of the program that is written in C language. Complete the following tasks.

i. Based on the source codes given on the following page, draw a flowchart that depict the "checkAge()" module. (8 marks)

ii. Based on the source codes given on the following page, state a function prototype that tells the compiler that the module receives one integer argument and does not return value. (2 marks)

iii. Complete source codes by writing the missing "checkHeight()" module. This module will determine if a message indicating applicant is qualified or not based on the height entered by user. If the height is more than or equal 160, the module will call a module that displays a message indicating that the applicant is qualified to be a cabin crew. Else, another module will be called where this module will display a message indicating that the applicant is not qualified. (10 marks)

(Total: 20 marks)

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Source Codes (1 of 2)

```
#include<stdio.h>

void inputAge(void);
void checkAge(void);
int inputHeight(void);
void checkHeight(int);
void displayOK(void);
void displayNotOK(void);
void ageOK(void);

int age;

main()
{
        inputAge();

        checkAge();

        system("PAUSE");

        return 0;
}

void inputAge(void)
{
        printf("Age: ");
        scanf(" %d", &age);

        return;
}

void checkAge(void)
{
        if(age >= 21)
                ageOK();
        else
                displayNotOK();

        return;
}
```

Continued...

Source Codes (2 of 2)

```
void ageOK(void)
{
        int height;

        height = inputHeight();

        checkHeight(height);

        return;
}

int inputHeight(void)
{
        int mheight;

        printf("height: ");
        scanf(" %d", &mheight);

        return mheight;
}

void displayOK(void)
{
        printf("\nQualified to be a Cabin Crew.\n");

        return;
}

void displayNotOK(void)
{
        printf("\nNot qualified to be a Cabin Crew.\n");

        return;
}
```

End of Paper